



Web Accessibility Tips and Tools

with

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“We design to embrace the things that make us human. It’s what drives us to **create a world that makes lives better.** The result is technology that’s inclusive.”

– Microsoft

# Intro to Digital Accessibility

WiLS World Short  
March 13, 2020



# **Benefits of Accessibility**

# Benefits of accessibility

Mitigate risk of lawsuits

Improve the experience for your entire community

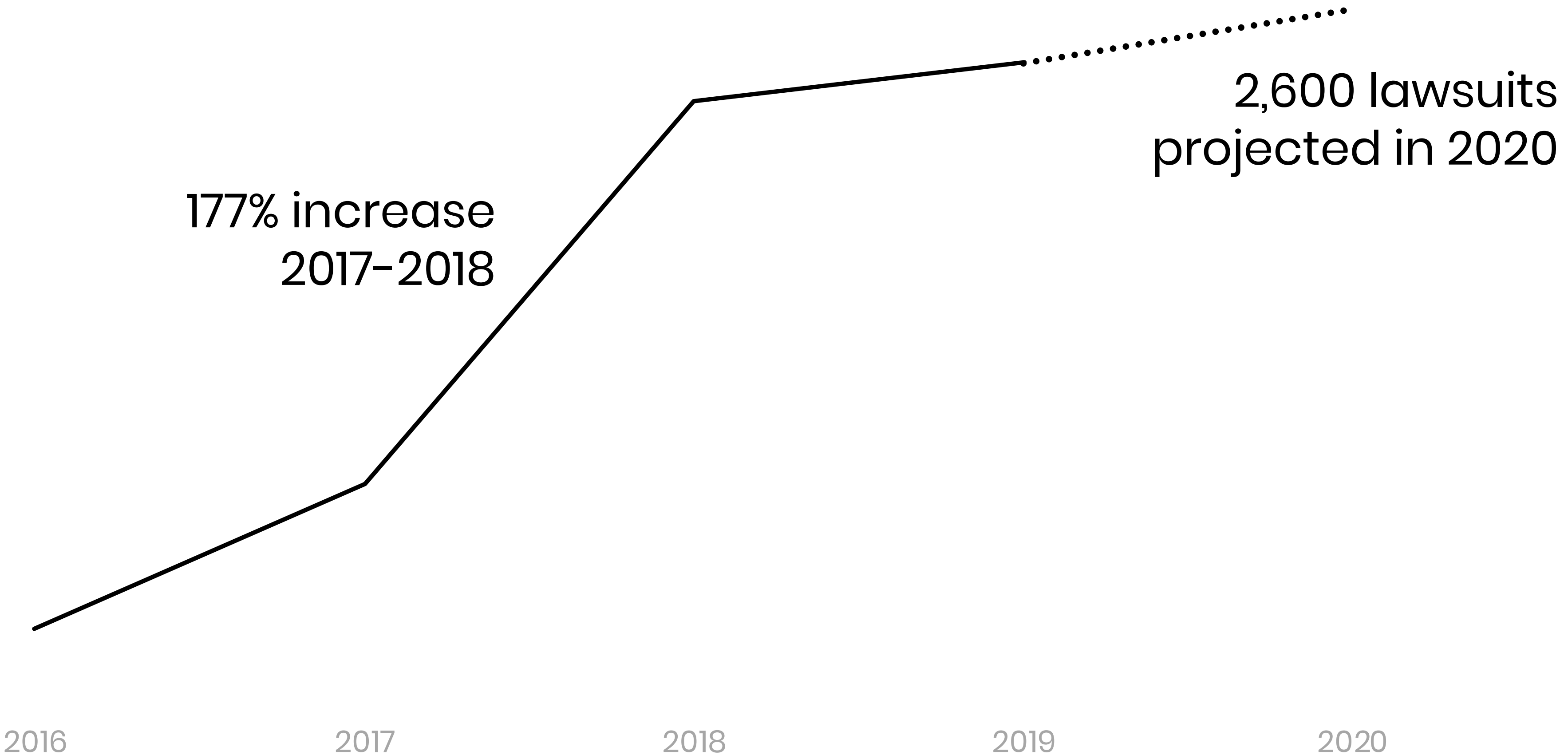
Enable disabled individuals

Providing equitable access for persons with disabilities to library facilities and services is required by **Section 504 of the Rehabilitation Act of 1973 & Americans with Disabilities Act of 1990**

REASON #1: AVOID LAWSUITS

The risk of an accessibility lawsuit  
increases **each year.**

# Lawsuits are on the rise





# Industries are varied

eCommerce

Retail

News & Media

Manufacturing

Beyoncé

Medicine

Education

Entertainment

Healthcare

Government

Sports

Education

Financial

Grocery

Real Estate

Hospitality

Restaurants

Automotive

# Lawsuits are expensive

Diminished reputation

Legal costs: defendant, plaintiff, expert witness, mediation

Mandated Post-settlement costs

Potential tag-along lawsuits

Opportunity cost of your engineering and design teams

REASON #2: IMPACT YOUR ENTIRE AUDIENCE

**1 in 5 people** have a legal officially recognized permanent disability.



# Legal disabilities

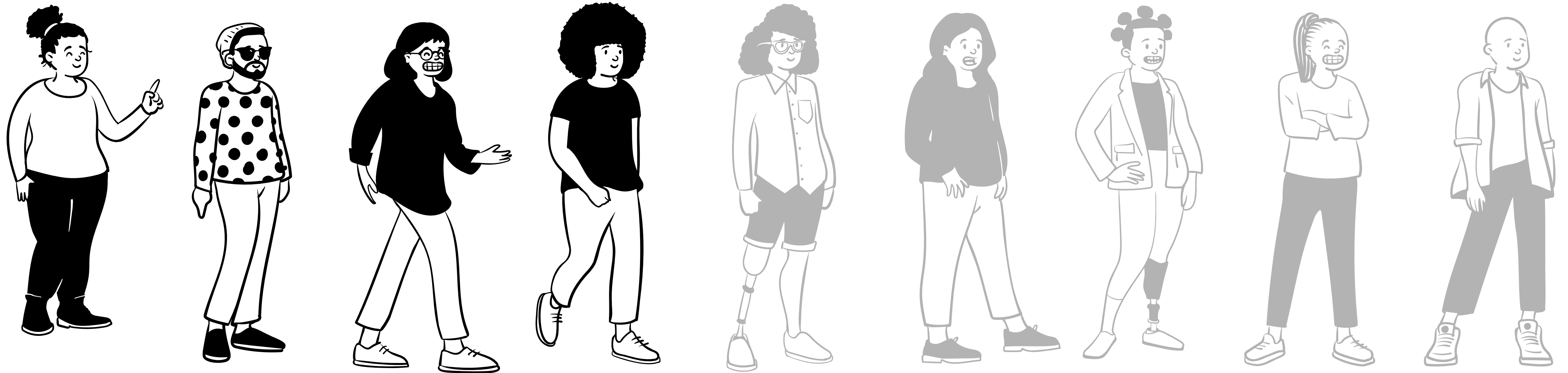
**Holding Phone and Tapping:** Missing Limb

**Remembering:** Alzheimers, Dementia

**Reading and Seeing:** Blindness, Vision Loss

**Hearing:** Deaf

**Anyone** can have a temporary impairment.



# Temporary impairments

**Holding Phone and Tapping:** Broken or injured limb

**Remembering:** Concussions and temporary memory loss

**Reading and Seeing:** Eye surgeries, Cataracts, temporary vision loss

**Hearing:** Ear infections, tinnitus (ear ringing)

**Situations** can impact every user's experience.



# Situational impact

**Holding Phone and Tapping:** Holding an object, like a bag or laptop

**Remembering:** Distracted by other people, really focused on their goal

**Reading and Seeing:** Sunny day, glare

**Hearing:** Wearing headphones, loud environment



# Loss of sight

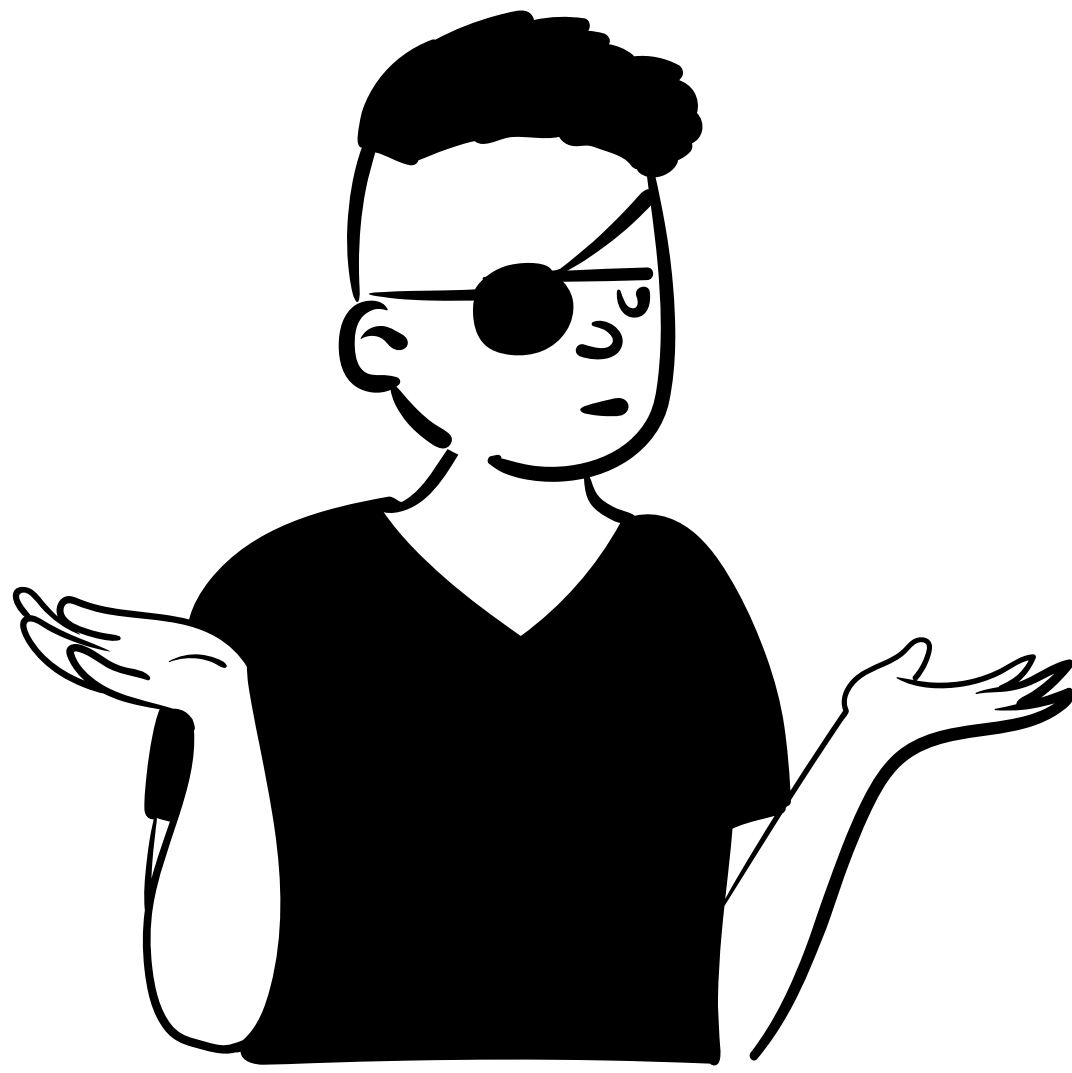


Permanent **2.4%**

# Loss of sight



Permanent **2.4%**

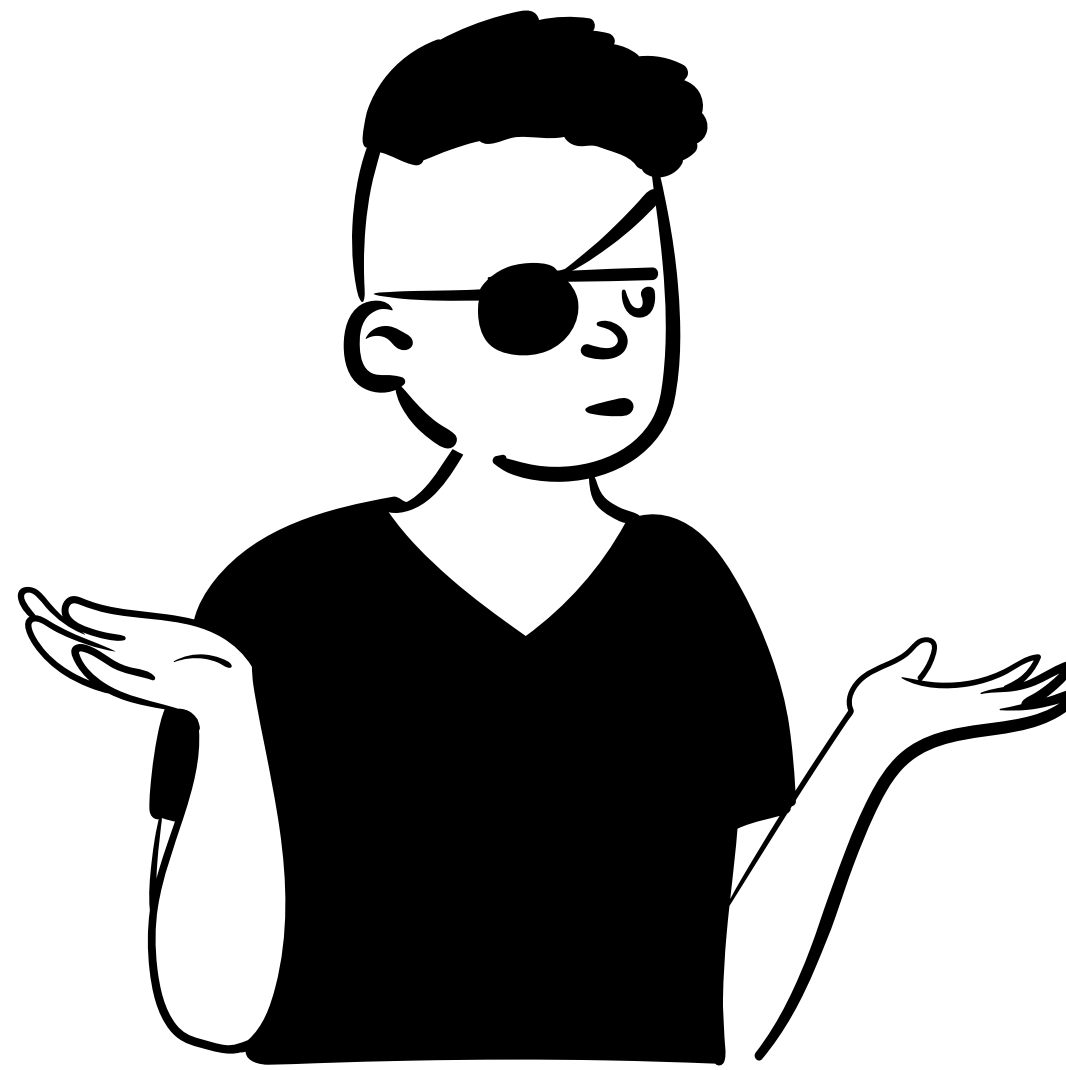


Temporary **5%**

# Loss of sight



Permanent **2.4%**



Temporary **5%**



Situational **100%**

REASON #3: EMPOWER DISABLED INDIVIDUALS

Web accessibility will **enable disabled patrons** to access your entire library.

[Read the whole report at air.org](http://air.org)

# Libraries for impaired individuals

Offers free or low-cost resources for a population who is the most likely to be in poverty

A place for disabled individuals to connect with others – in person or online

Promote literacy for all individuals

... and all of the other many benefits!

# Getting Started

# Who makes the rules?

Web Accessibility Initiative (WAI) of World Wide Web Consortium (W3C)

Guidelines for inclusive design

Influence accessibility and disability law

Both website and mobile apps

Perceivable, Operable, Understandable, Robust (POUR)

## PART #1: PERCEIVABLE

“Information and user interface components must be presentable to users in ways they can **perceive**”



# Perceivable

User needs to be able to perceive your website via at least one sense

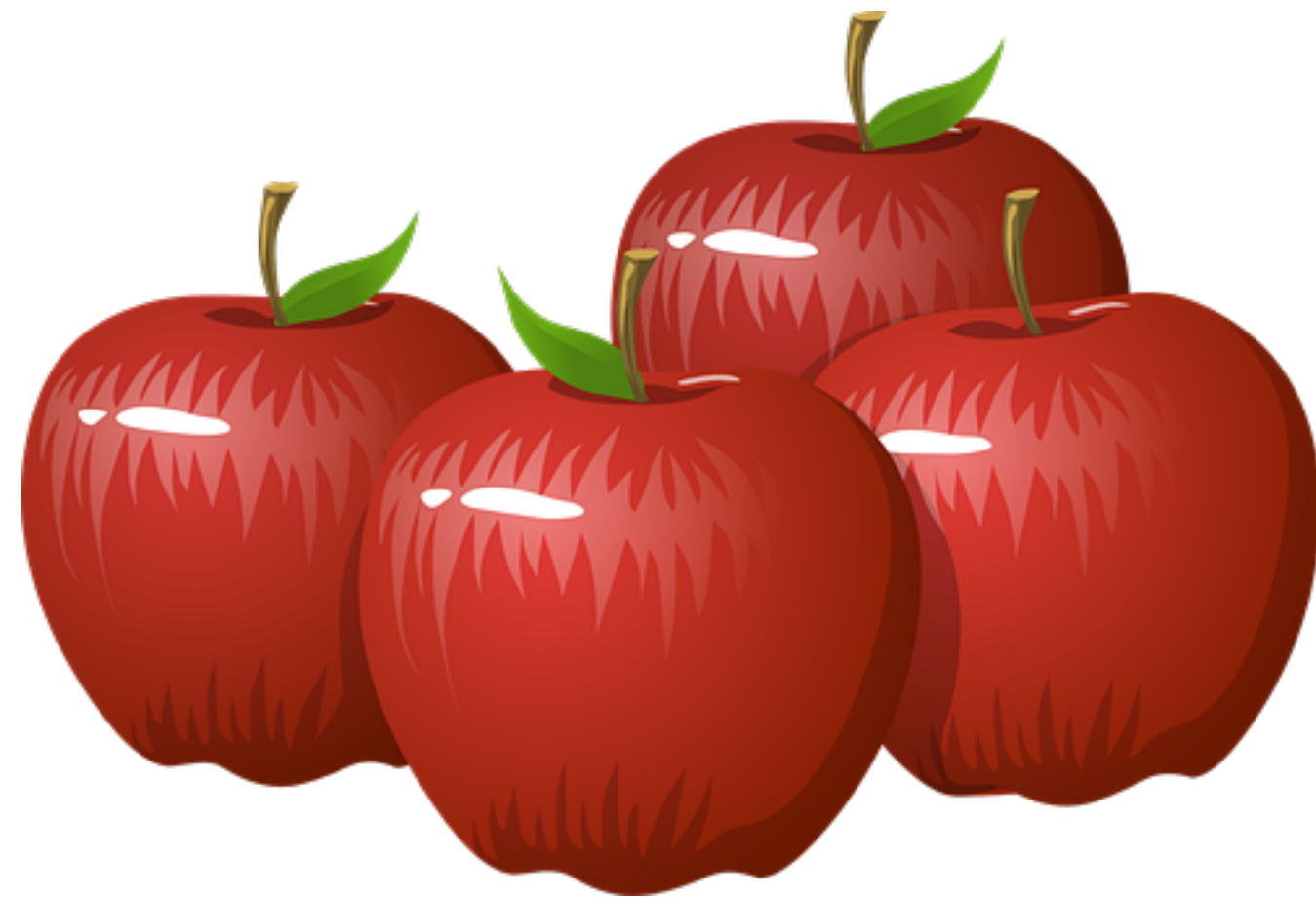
Cannot be invisible to them

Example: an image without an alt tag (which can be read by a screen reader) is not perceived

# Getting started

1. Write appropriate alt tags
2. Test for color blindness
3. Add captions for videos, audio, podcasts

# 1. Write appropriate alt



Visual user:

**Sees pictures of apples**

Visually impaired user:

**Doesn't know the picture  
is there unless you tell them**

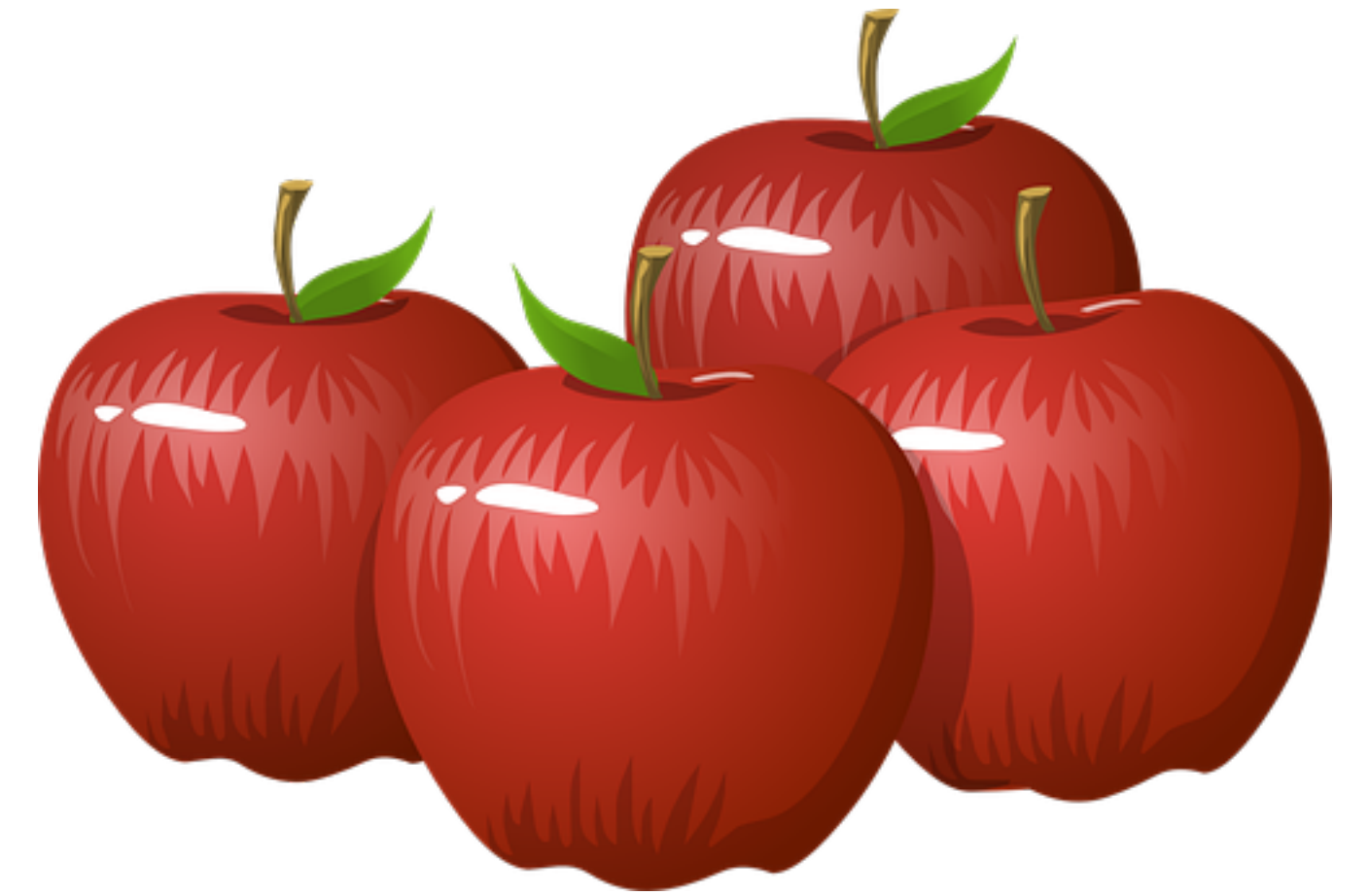
# 1. Write appropriate alt

Screen readers describe the elements of a page (this is an image, a button, a heading)

They can only describe the contents of the element if you help

Alt tag: “An illustration of four shiny red apples”

Will be read as “Image, an illustration of four shiny red apples”



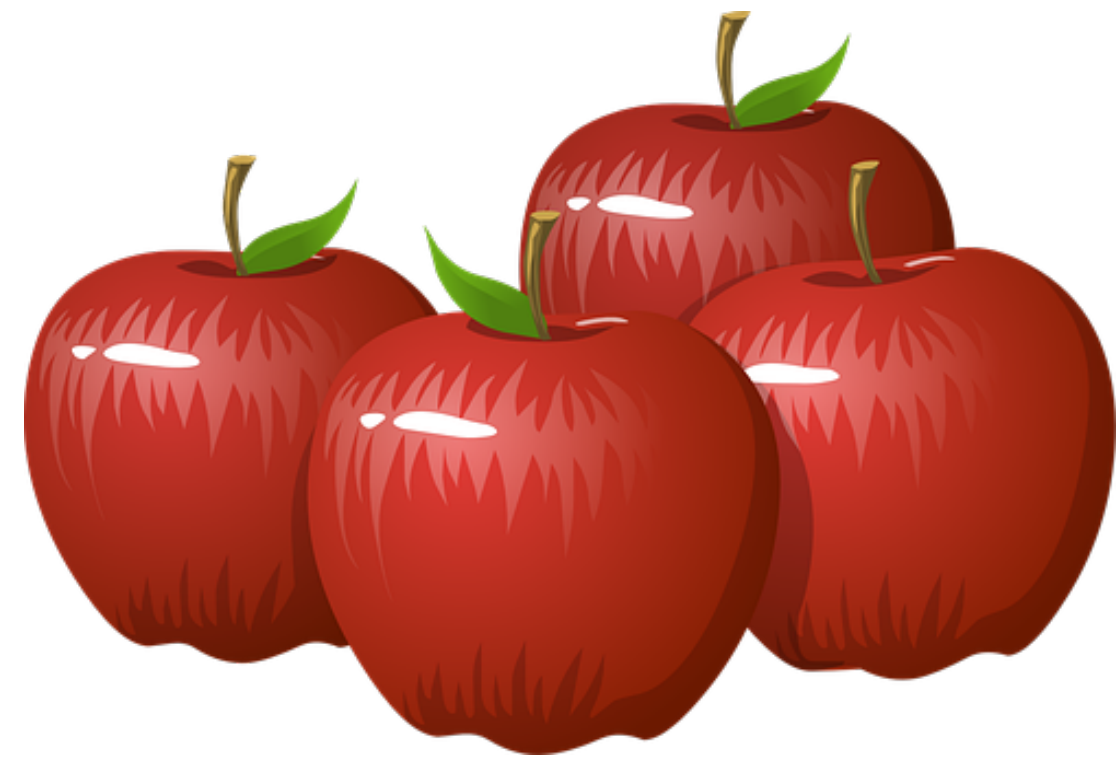
# 1. Write appropriate alt

No alt tag: defaults to Submit Form - not bad but could be better

Alt tag: "Submits your tax data", will be read as "Button, submits your tax data"

A blue rectangular button with rounded corners containing the text "Submit Form" in white.

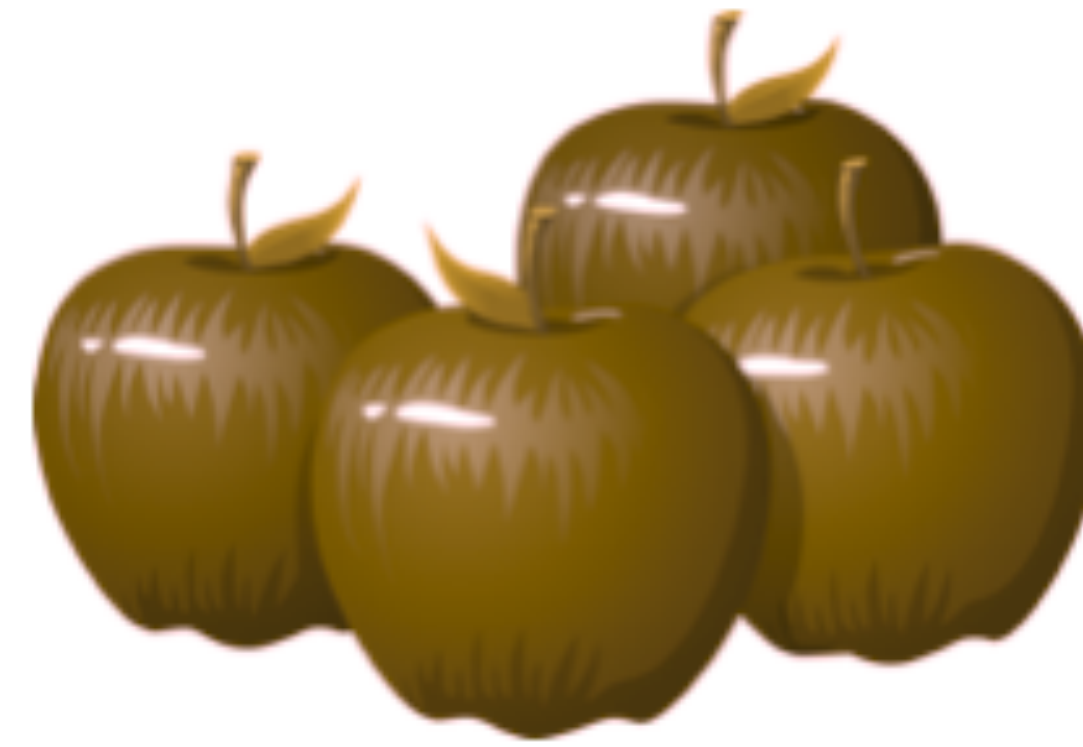
## 2. Look at color blindness



No impairment



Yellow-blue



Red-green



Monochromacy

# 2. Look at color blindness

First Name

John

Last Name

Example

Email Address

john@example

Submit

Normal Sight  
(No Confusion)

First Name

John

Last Name

Example

Email Address

john@example

Submit

Deuteranopia  
(Red-Green Confusion)

First Name

John

Last Name

Example

Email Address

john@example

Submit

Tritanopia  
(Yellow-Blue Confusion)

# 3. Video and audio captioning

Someone who is deaf has no way of listening to your audio

Provide a transcript for all audio

Provide a description of any major visual changes for video (“Johnny walked out of the room”)



PART #2: OPERABLE

“User interface components and navigation must be **operable**”

# Operable

Users must be able to operate the interface (the interface cannot require interaction that a user cannot perform)

Not everyone uses a keyboard on desktop (or they may use one with mobile)

Flashing or self-play animations can cause seizures

Some users need longer time to complete tasks

# Getting started

4. Use a keyboard (and no mouse!) to try and get around your website
5. Get rid of any flashing elements

# 4. Keyboards

People with motor impairments, like Parkinson's, or who are blind usually don't use a mouse

It's easier for them to control a keyboard

Try using your website with just the keyboard and no mouse – it's surprisingly difficult

Design and develop with keyboard-only in mind






**HTTP Working Group**  
@http\_wg  
Responsible for maintaining and developing the HyperText Transfer Protocol, the bedrock of the World Wide Web. Follow @httpbis for document changes.  
[httpwg.github.io](http://httpwg.github.io)  
Joined February 2014


 Tweet to HTTP Working Gro...

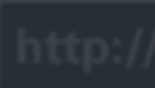

Compose new Tweet ✕

What's happening?







Add photos or video

 **GIF**  

140 

-  HTTP Working Group @http\_wg · 18 Aug 2014  
Starting work on the Tunnel-Protocol request header field: [tools.ietf.org/html/draft-iet...](http://tools.ietf.org/html/draft-iet...)
-  HTTP Working Group @http\_wg · 7 Aug 2014  
HTTP/2 is in Working Group Last Call - [lists.w3.org/Archives/Publi...](http://lists.w3.org/Archives/Publi...)
-  HTTP Working Group @http\_wg · 17 Jun 2014  
Hello world.

- Who to follow · Refresh · View all
-  **Paul Lewis** @aerotwist ✕  

  -  **Alex Sexton** @SlexAxton ✕  

  -  **Addy Osmani** @addyosmani ✕  

- Find friends

United States Trends · Change  
**#NoBillNoBreak**  
140K Tweets

# 5. Flashing elements

Anything that flashes or has shaky movement can cause someone with epilepsy to experience seizures

Disable autoplay on videos

## PART #3: UNDERSTANDABLE

“Information and the operation of user interface must be **understandable**”

# Understandable

Users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding)

Some users have a lower reading comprehension level

Avoid jargon, use simple and concise language



# Getting Started

6. Use simple, concise language
7. Explain any jargon or complex terminology
8. Break content up with headers and white space

# 6. Simple, concise language

Use plain language

Focus on the content that is relevant to the user

Use familiar words over far-fetched

Use short words over long words

Use concrete words over abstractions

Eliminate unnecessary content

## Registration

New to Amazon.com? Register Below.

My name is:

My e-mail address is:

Type it again:

My mobile phone number is:  (Optional)

[Learn more](#)

## Protect your information with a password

This will be your only Amazon.com password.

Enter a new password:

Type it again:

[Create account](#)

## Create account

Your name

Email

Password

Password again

[Create your Amazon account](#)

By creating an account, you agree to Amazon's [Conditions of Use](#) and [Privacy Notice](#).

Already have an account? [Sign in](#)

# Example

There is no escaping the fact that it is considered very important to note that a number of various available applicable studies ipso facto have generally identified the fact that additional appropriate nocturnal employment could usually keep juvenile adolescents off thoroughfares during the night hours, including but not limited to the time prior to midnight on weeknights and/or 2 a.m. on weekends.

*versus*

More night jobs would keep youths off the streets.

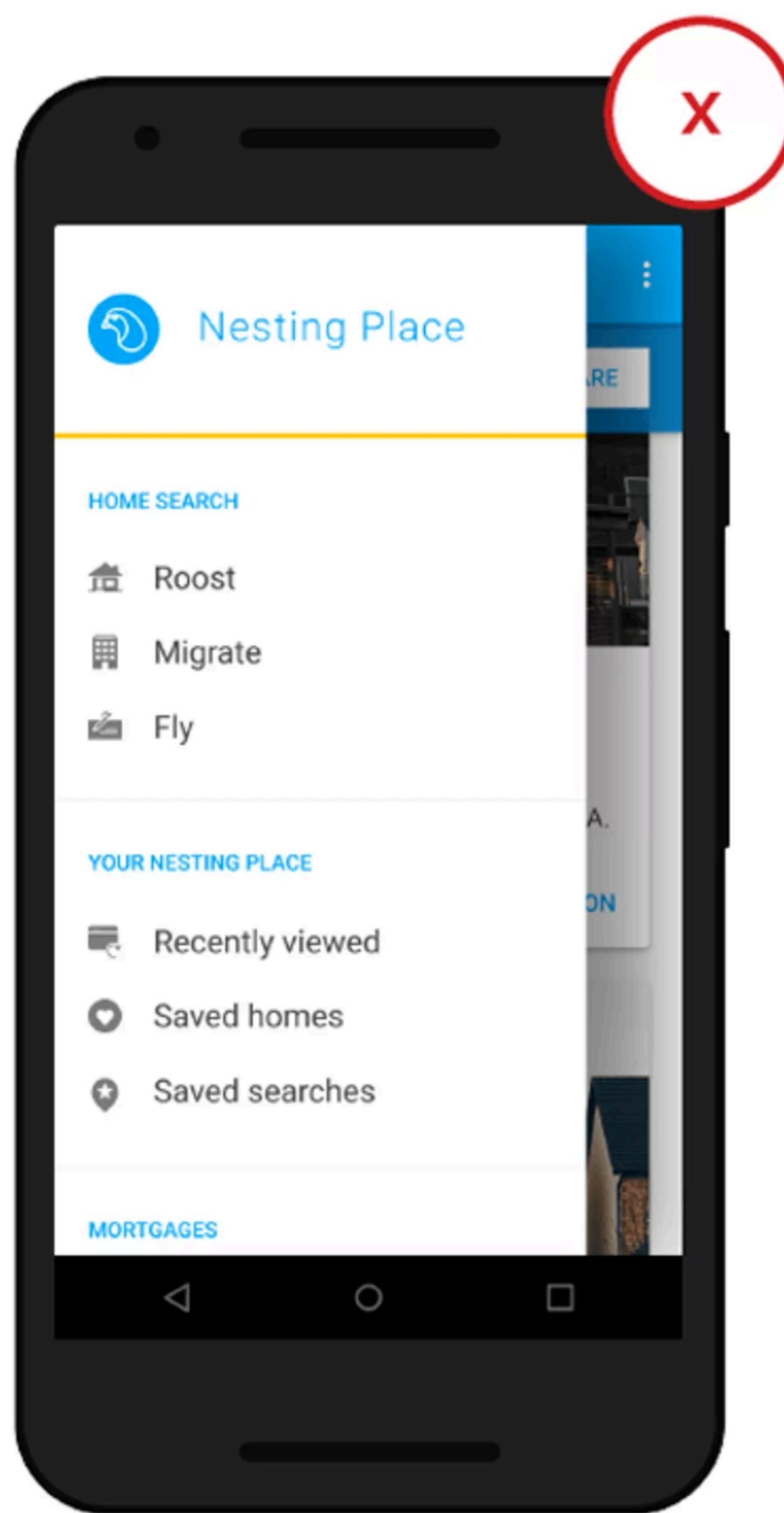
# 7. Explain jargon

Avoid legalese where possible (and back it up with simple language)

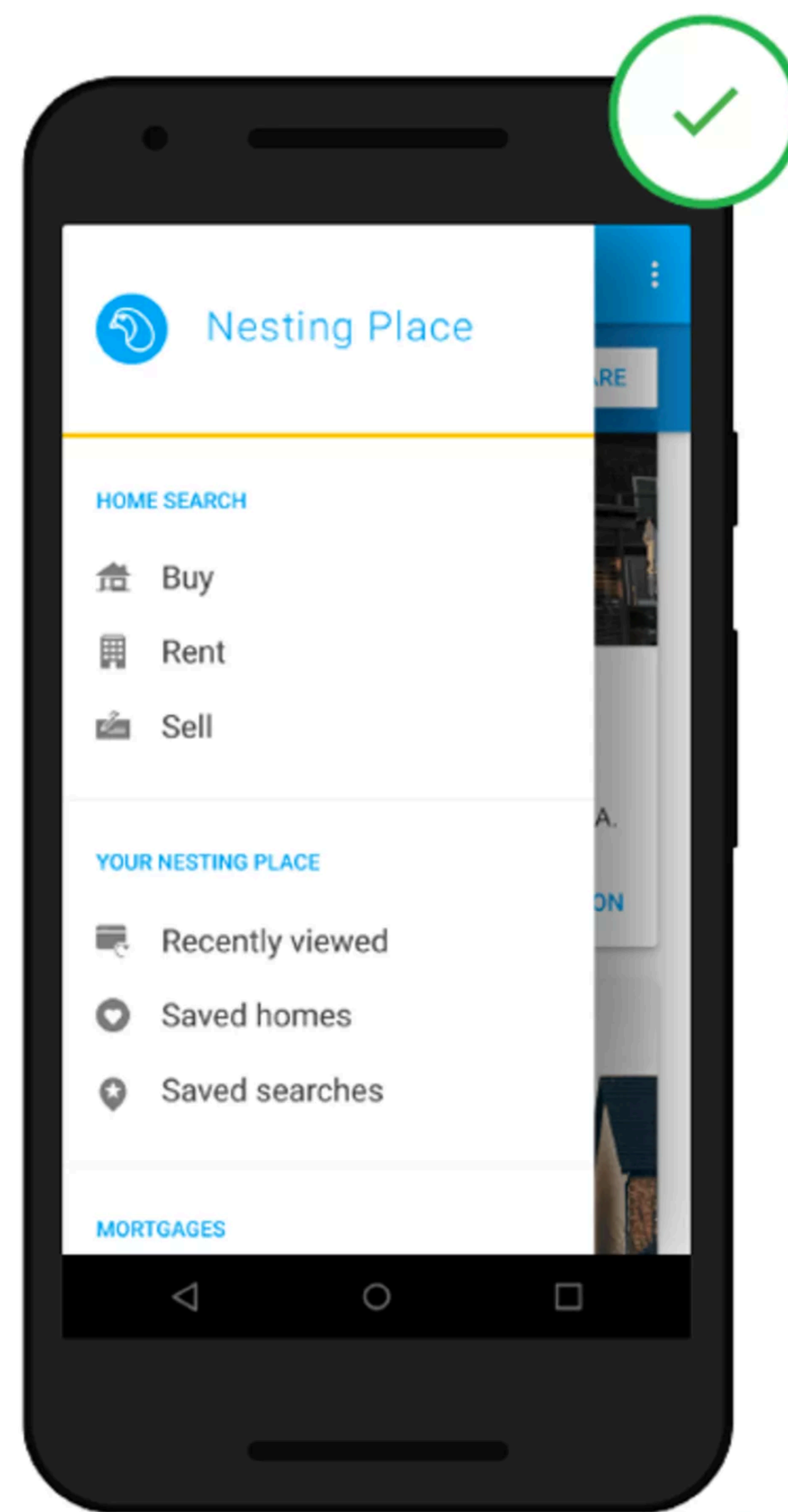
Remove filler phrases

If you have to use jargon, have a method that helps people define terminology (glossary, tooltip)

<b>✘ Don't say</b>	<b>✔ Say</b>
riverine avifauna	river birds
involuntarily undomiciled	homeless
The patient is being given positive-pressure ventilatory support.	The patient is on a respirator.
Most refractory coatings to date exhibit a lack of reliability when subject to the impingement of entrained particulate matter in the propellant stream under extended firing durations.	The exhaust gas eventually damages the coating of most existing ceramics.



**X** Unconventional terminology (e.g., "Roost," "Migrate," or "Fly") can confuse users, hindering discoverability and comprehension.



**✓** Terminology (e.g., "Buy," "Rent," or "Sell") is clear and free from unnecessary jargon or whimsy to avoid confusion.

# 8. Break up content with space

Use short paragraphs

Break up longer text with headers and bolding

Leverage bullet points and numbered lists



Long, dense paragraph

✘ **Before**

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**Flu Medication**

A specific vaccine for humans that is effective in preventing avian influenza is not yet readily available. Based upon limited data, the CDC has suggested that the anti-viral medication Oseltamivir (brand name-Tamiflu) may be effective in treating avian influenza. Using this input, the Department of State has decided to pre-position the drug Tamiflu at its Embassies and Consulates worldwide, for eligible U.S. Government employees and their families serving abroad who become ill with avian influenza. We emphasize that this medication cannot be made available to private U.S. citizens abroad. Because of this, and because Tamiflu may not be readily available overseas, the State Department encourages American citizens traveling or living abroad to consult with their private physician about whether to obtain Tamiflu prior to travel, for use in the event treatment becomes necessary, or whether Tamiflu is readily available in the country where they reside

Divided into paragraphs

✔ **After**

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**Flu medication for government employees**

A specific vaccine for humans effective in preventing avian influenza is not yet readily available. Based on limited data, the CDC suggested that the anti-viral medication Oseltamivir (brand name-Tamiflu) may be effective in treating avian influenza. Using this input, the Department of State decided to pre-position the drug Tamiflu at its Embassies and Consulates worldwide, for eligible U.S. Government employees and their families serving abroad who become ill with avian influenza.

**Flu medication for private citizens**

We emphasize that we can't make this medication available to private U.S. citizens abroad. Because of this, and because Tamiflu may not be readily available overseas, the State Department encourages American citizens traveling or living abroad to consult with their private physician about whether to get Tamiflu before

## PART #4: ROBUST

“Content must be **robust** enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies”

# Robust

Your website or app should work with current assistive technologies, but also be robust enough that it can work with future tech

Works in all modern browsers, no major code errors, leverages modern technologies

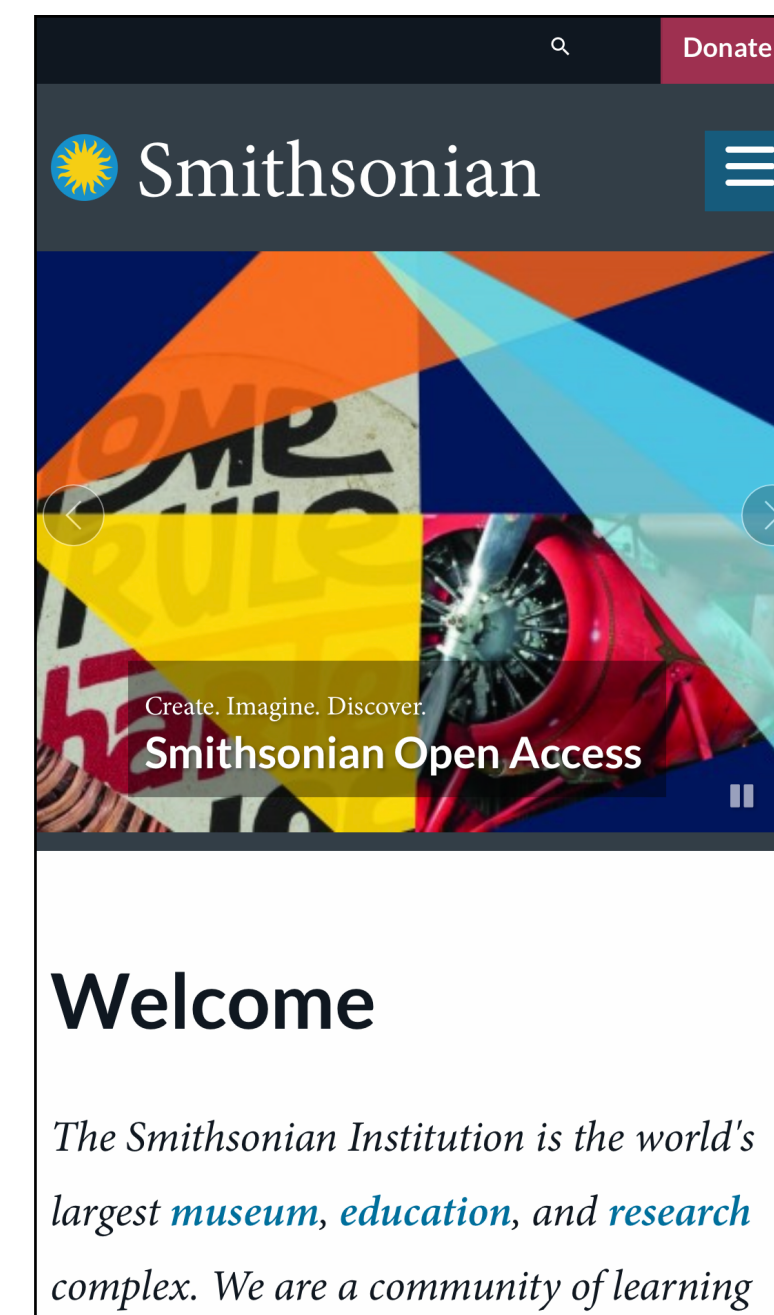
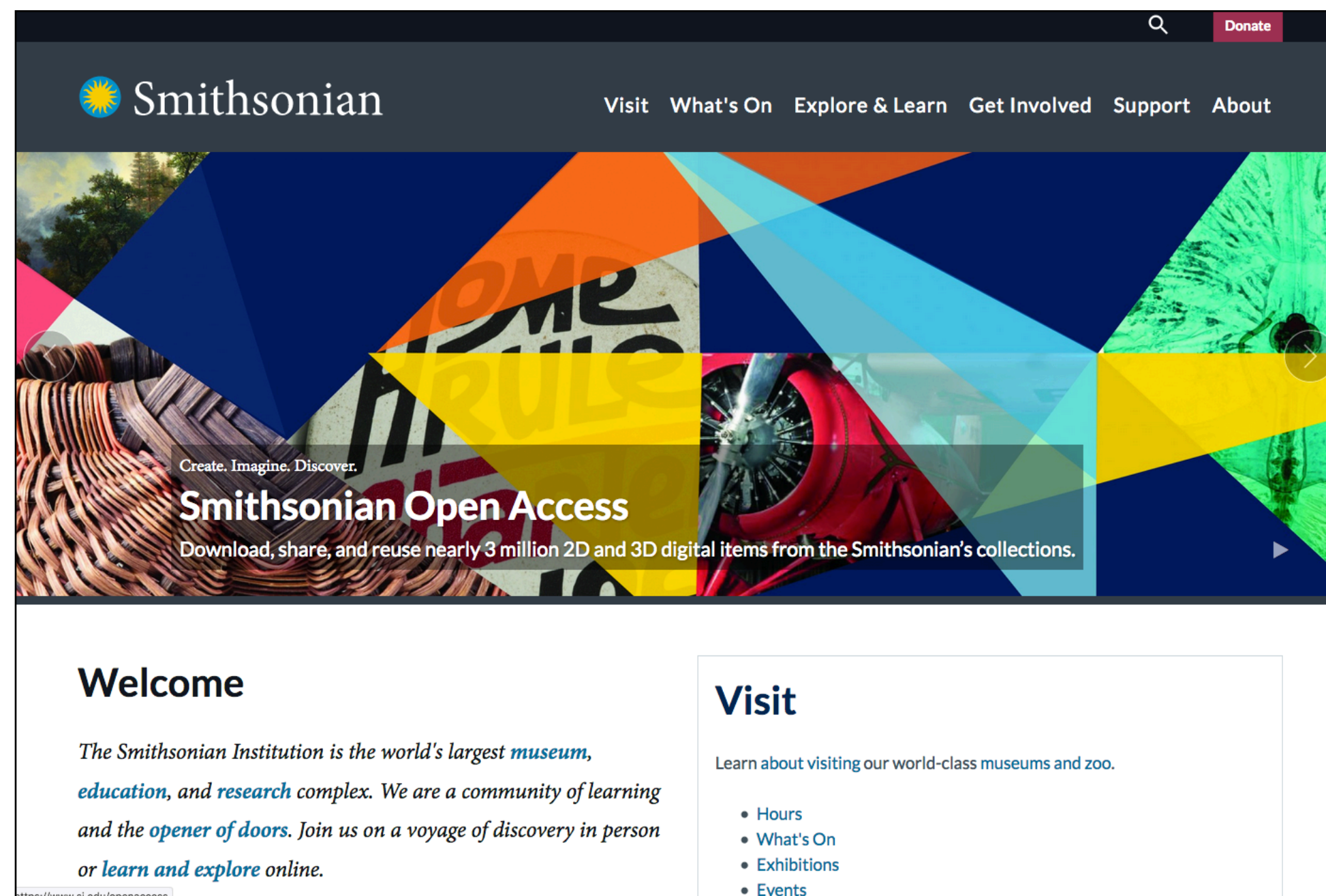
# Getting started

9. If your website isn't already, it needs to be mobile responsive
10. Watch some screen reader demos

# 9. Mobile responsive

Increasing number of users are mobile first (or mobile only)

Your website should be responsive down to 320px



# 10. Screen reader demos

## **JAWS Screen Reader Demo from SLCC Universal Access**

[https://www.youtube.com/watch?v=q\\_ATY9gimOM](https://www.youtube.com/watch?v=q_ATY9gimOM)

## **MacOS Screen Reader Demo from UCSF**

<https://www.youtube.com/watch?v=dEbl5jvLKGQ>

## **NVDA Screen Reader Demo from eLaHub**

<https://www.youtube.com/watch?v=vAcYipyXGvc>

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5. Get rid of any flashing elements
6. Use simple, concise language
7. Explain any jargon or complex terminology
8. Break content up with headers and white space
9. If your website isn't already, it needs to be mobile responsive
10. Watch some screen reader tutorials

# **Tools & Resources**



# Resources – perceivable

## **Color Oracle – colorblindness simulator**

<https://colororacle.org/>

## **Colour Contrast Analyzer**

<https://developer.paciellogroup.com/resources/contrastanalyser/>

## **Creating a Perceivable Site**

<https://webaim.org/articles/pour/perceivable>

# Resources - operable

## **Epilepsy Analysis Tool**

<https://trace.umd.edu/peat>

## **Creating an Operable Site**

<https://webaim.org/articles/pour/operable>

# Resources – understandable

## **Plain Language Guidelines**

<https://plainlanguage.gov/guidelines/>

## **Creating an Understandable Site**

<https://webaim.org/articles/pour/understandable>

# Resources – robust

## **I Used the Web for a Day Using a Screen Reader**

<https://www.smashingmagazine.com/2018/12/voiceover-screen-reader-web-apps/>

## **VoiceOver (Mac) screen reader**

<https://www.apple.com/accessibility/mac/vision/>

## **NVDA screen reader**

<https://www.nvaccess.org/>

## **JAWS screen reader**

<https://www.freedomscientific.com/products/software/jaws/>

# Articles

## **Small Town Libraries and the Challenges of ADA Compliance: Can a small town create a better community through ADA compliance?**

Charlene M. Coleman, University of Massachusetts - Amherst, 2012

<https://scholarworks.umass.edu/cgi/viewcontent.cgi?>

[httpsredir=1&article=1001&context=cppa\\_capstones](httpsredir=1&article=1001&context=cppa_capstones)

## **Introduction to Web Accessibility**

<https://www.w3.org/WAI/fundamentals/accessibility-intro/>

## **What is Title III?**

<https://adata.org/what-title-iii>

# Books

## **A Web For Everyone – Designing Accessible User Experiences**

Sarah Horton & Whitney Quesenbery, Rosenfeld Media, 2013

<https://rosenfeldmedia.com/books/a-web-for-everyone/>

## **Accessibility For Everyone**

Laura Kalbag

<https://abookapart.com/products/accessibility-for-everyone>

## **Accessibility Handbook – Making 508 Compliant Websites**

Katie Cunningham

<http://shop.oreilly.com/product/0636920024514.do>